

REMARKS

Claims 1-6 and 8-27 are pending in the application. Claim 1 has been amended. Claims 15-27 have been withdrawn from consideration.

I. CLAIM REJECTIONS UNDER 35 U.S.C. § 102(b)

Claims 1-6, 8-9 and 12-14 remain rejected under 35 U.S.C. § 102(b) as being anticipated by Chou (U.S. Patent No. 6,482,742). Claim 10 also remains rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Chou.

Applicants respectfully traverse the rejections for at least the following reasons. Claim 1 has been amended to recite that the substrate is positioned *outside* of the pressurized cavity. Referring to Fig. 7 below, it can be seen that in the present invention, the cavity 115 has a first wall that is the flexible membrane 113. Pressure source 116 is devised to apply an overpressure to a fluid medium in the cavity 115.

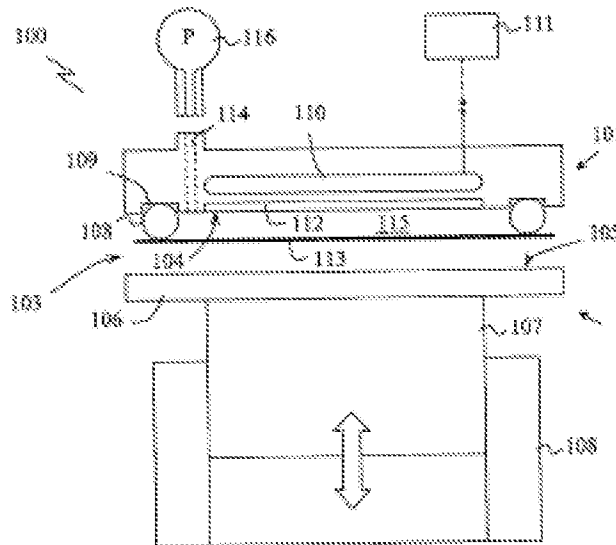


Fig. 7

Referring to Fig. 8 below, the substrate 12 carrying the surface layer of radiation polymerisable fluid is supported on surface 105 of the second main part 102.

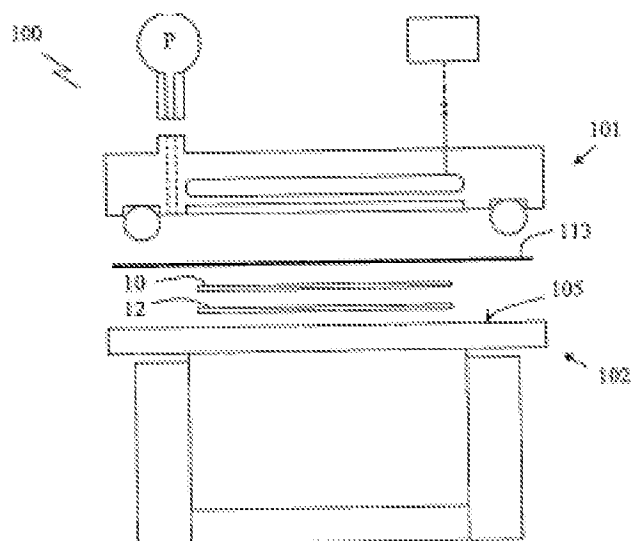


Fig. 8

Referring to Fig. 9 below, when the cavity 115 is pressurized, the flexible membrane 113 pushes down on the substrate 12 supported by the second main part 102, the substrate 12 being positioned *outside* of the pressurized cavity 115

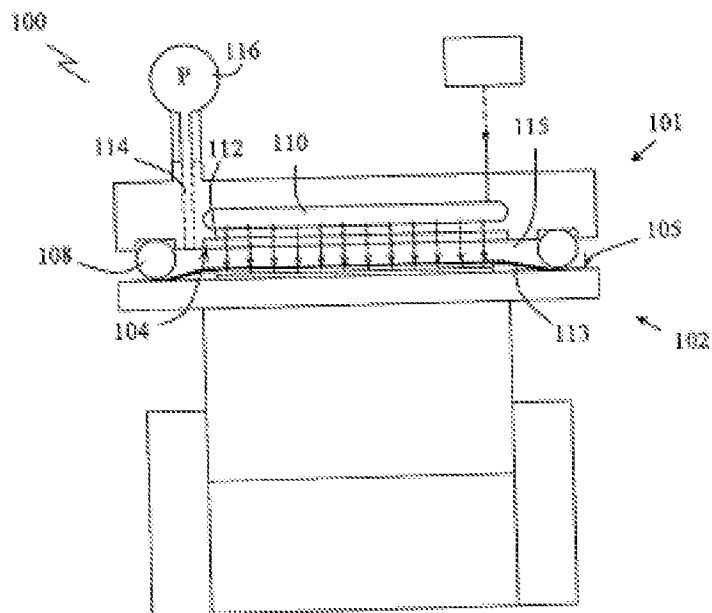
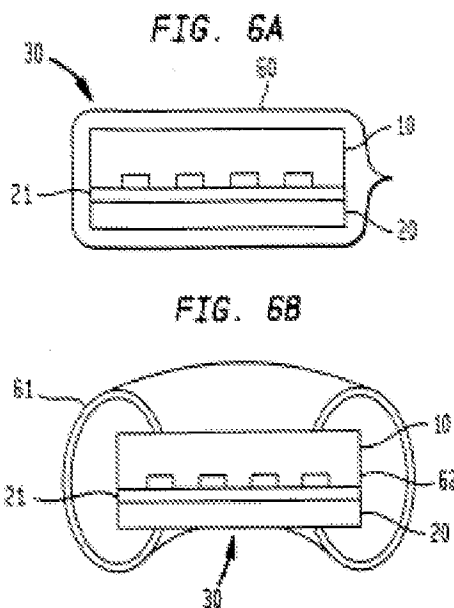


Fig. 9

It is the Examiner's position that Chou et al. discloses a cavity having a first wall comprising a flexible membrane. The Examiner relies on the plastic bag 60 that seals the mold assembly as illustrated in Figure 6A (below), or the peripheral sealing clamp 61 of the alternative embodiment illustrated in Figure 6B (below) as embodying the cavity.



Chou et al.

Using the Examiner's interpretation, the substrate 20 of Chou is positioned *inside* the cavity. Chou fails to disclose or suggest positioning the substrate 20 outside of the pressurized cavity. Because Chou et al. fails to disclose all of the recited features of the claimed apparatus, Chou et al. does not anticipate claims 1-6, 8-10 and 12-14. Accordingly the rejection under 35 U.S.C. §102(b) should be withdrawn.

Applicants further submit that apparatus as presently claimed would not have been obvious in view of the teachings of Chou et al. All of the embodiments disclosed in Chou et al. require putting the template and substrate into a pressurized enclosure or at least making the template and the substrate part of such a pressurized enclosure. For the purpose of achieving high production speed when transferring patterns from the template onto a substrate, most embodiments of Chou et al. require the user to press the template and substrate firmly together before

transferring them or putting them in an external pressurized vessel. These multiple steps will definitely slow down the pattern production process. While the embodiments disclosed in Figs. 6C and 6D may not have problems with production speed, they most likely lack accuracy in the transfer of the structures from the template to the substrate, since the absence of a membrane will likely introduce air pockets between the template and the substrate during imprint.

In contrast, with the apparatus of the present invention, the presence of the flexible membrane increases transfer accuracy due to the tight engagement of the substrate or the template during imprint. The apparatus of the presently claimed invention provides a simpler and more effective way, particularly in the case of nano-sized patterns, to achieve the transfer of a pattern from a template to a substrate. Moreover, the absence of any external pressure chamber enclosing the substrate and template allows for a more rapid imprint process, since the step of clamping the substrate and template together and then transferring them to a pressure chamber is eliminated. In view of the foregoing amendments and remarks, Applicants respectfully submit that the apparatus of claims 1-6, 8-10 and 12-14 is neither anticipated by nor obvious in view of Chou et al.

II. REJECTION OF CLAIM 11 UNDER 35 U.S.C. § 103(a)

Claim 11 also remains rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou et al. in view of Wolff (U.S. Patent No. 4,095,113). It is the Examiner's position that it would have been obvious to use Wolff's xenon lamp as a source of UV radiation for the invention of Chou et al.

Applicants respectfully traverse the rejection for at least the following reasons. As discussed above, Chou et al. fails to disclose an apparatus for transferring a pattern from a template having a structured surface to a substrate, the apparatus including a cavity having a first wall, the first wall comprising a flexible membrane devised to engage either the template or the substrate, the substrate being positioned outside of the cavity. Wolff is directed a tanning machine that produces UV radiation for the purpose of browning human skin. As such, Wolff does not cure

the deficiencies of Chou et al. Even if one skilled in the art where somehow motivated to look to Wolff for a source of UV radiation in order to modify the lithographic apparatus of Chou et al., the resulting modified apparatus would not include all of the recited features of the apparatus of claim 11. Because prima facie obviousness has not been established, the rejection of claim 11 under 35 U.S.C. §103(a) should be withdrawn.

IV. CONCLUSION

Accordingly, claims 1-6 and 8-14 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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